OIPE JC32
JUN 18 2004
PATENT & TRADEMARK OFFICE

FIG. 1

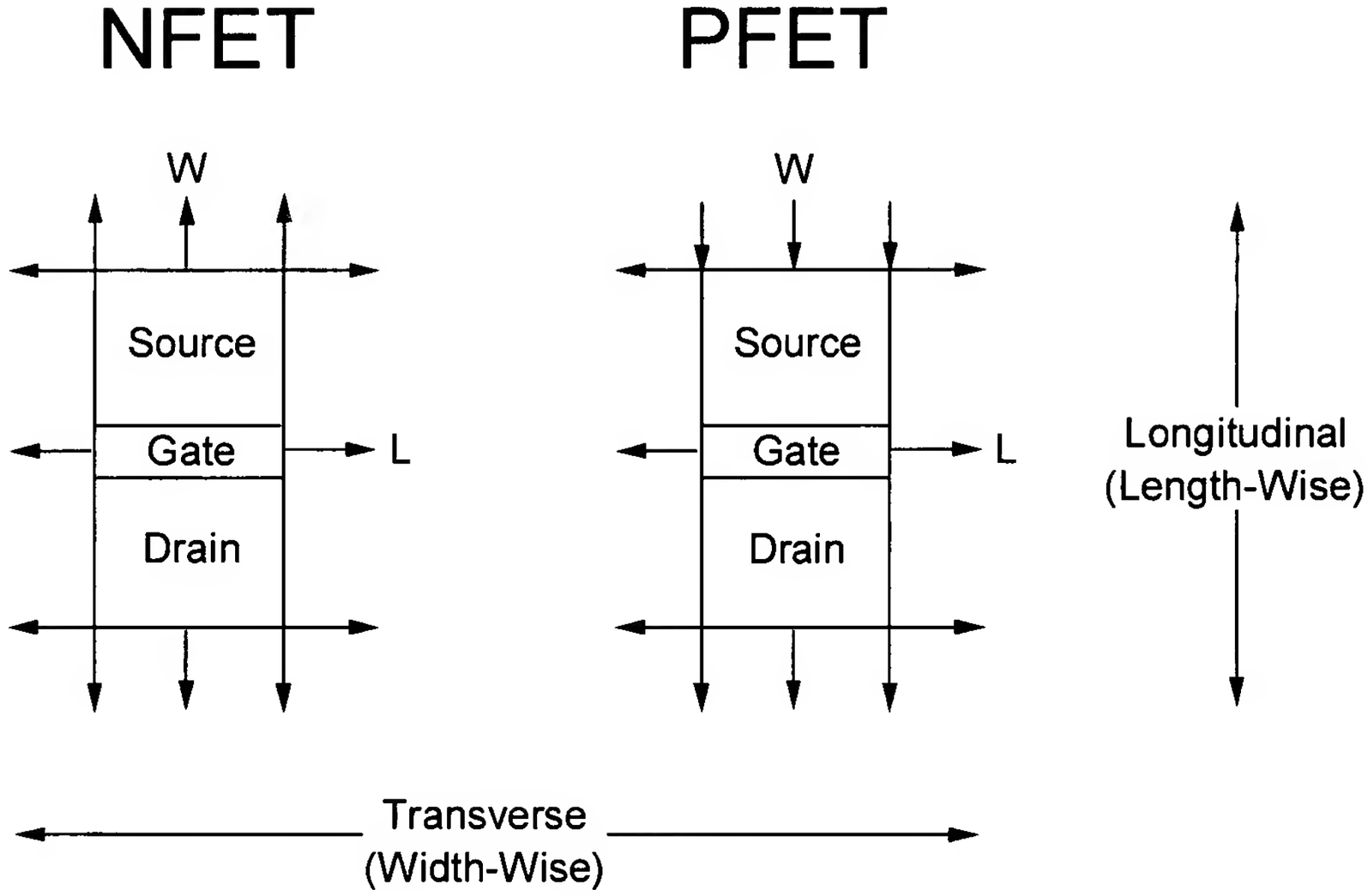


FIG. 2A

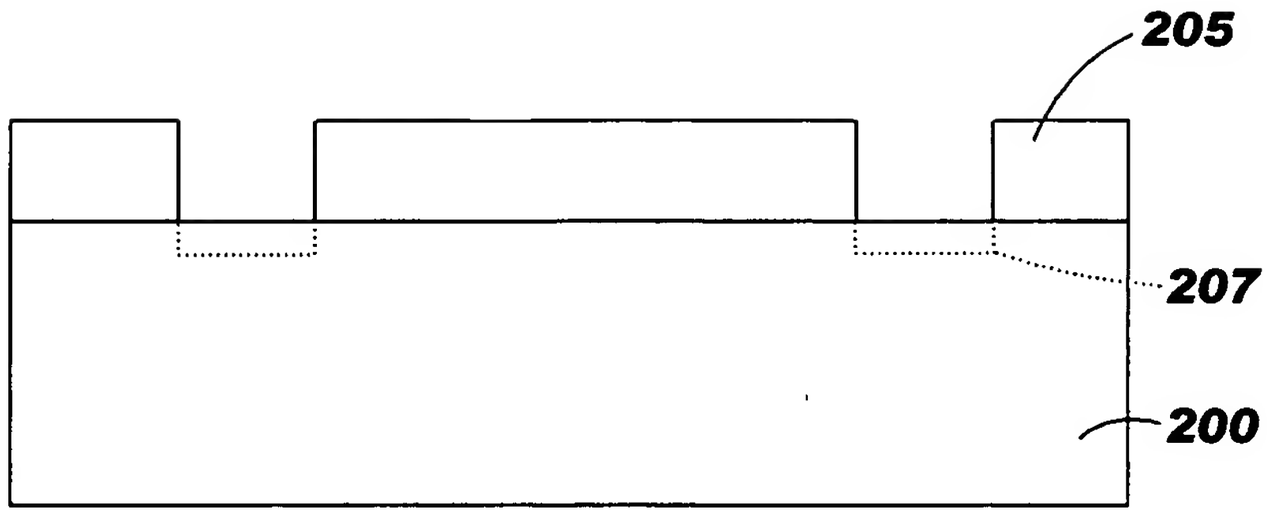


FIG. 2B

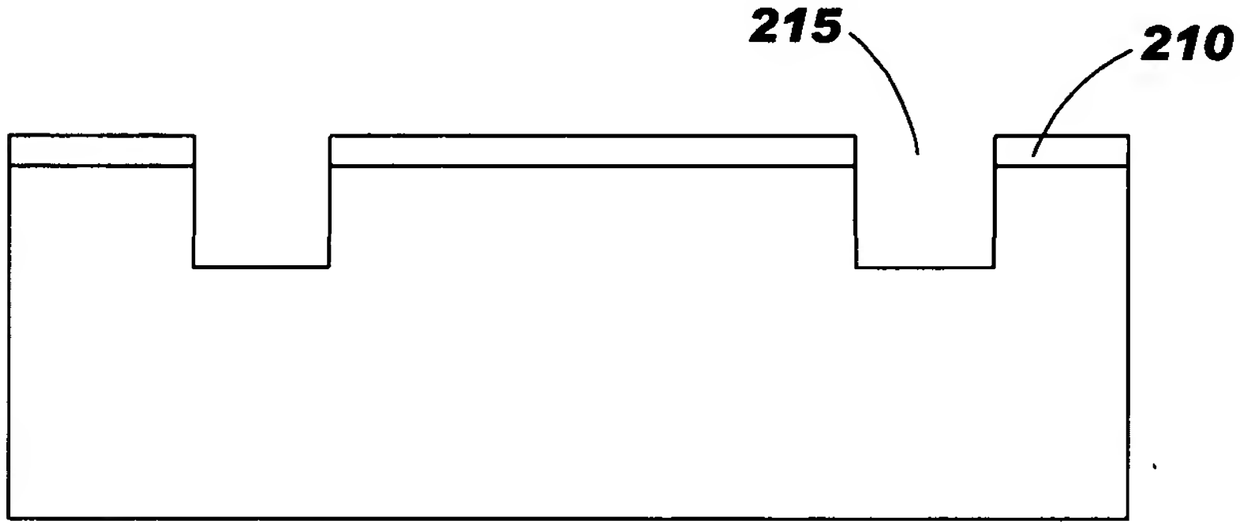


FIG. 2C

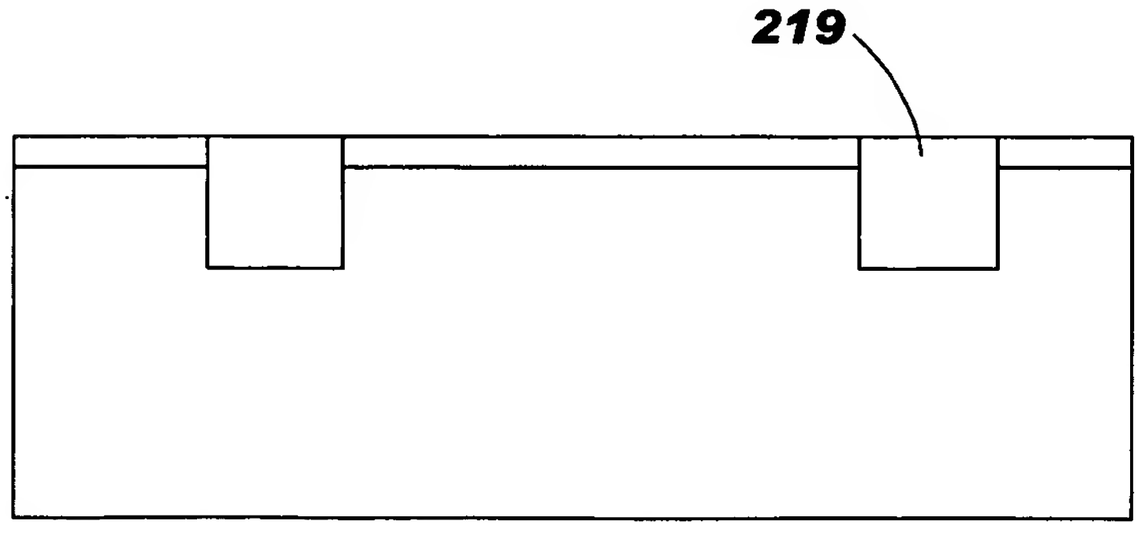


FIG. 2D

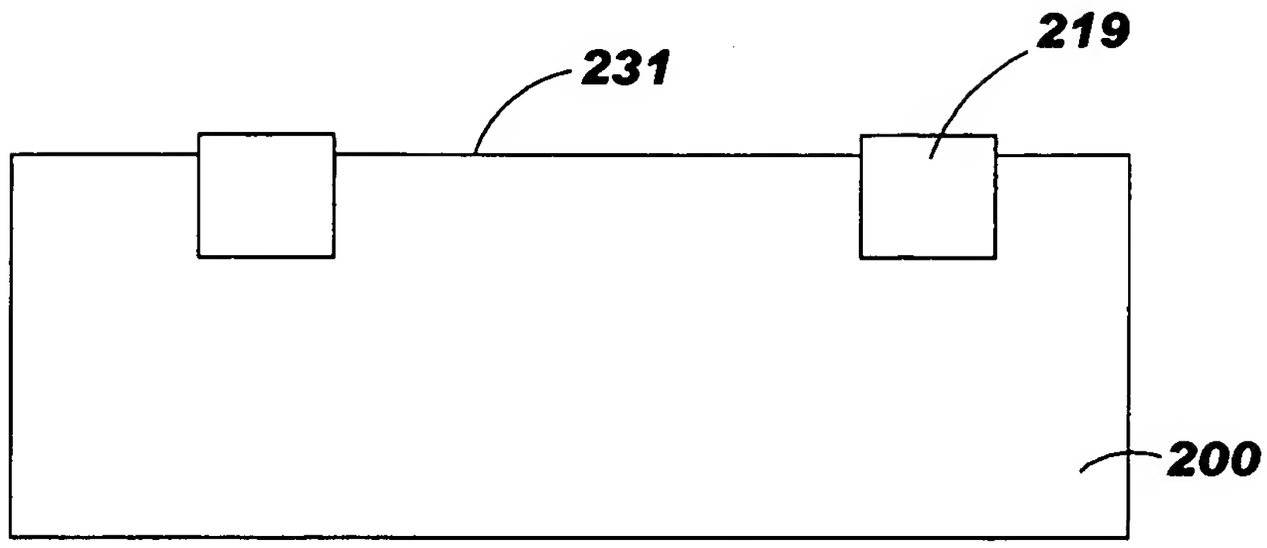


FIG. 2E

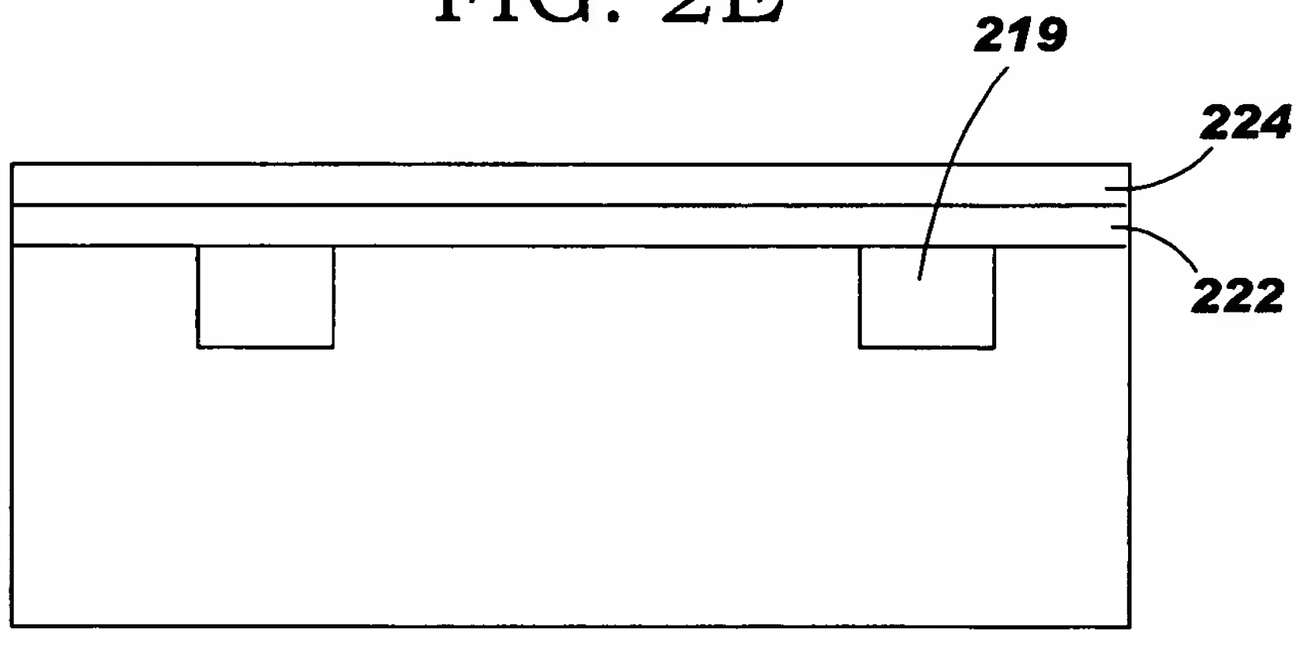


FIG. 2F

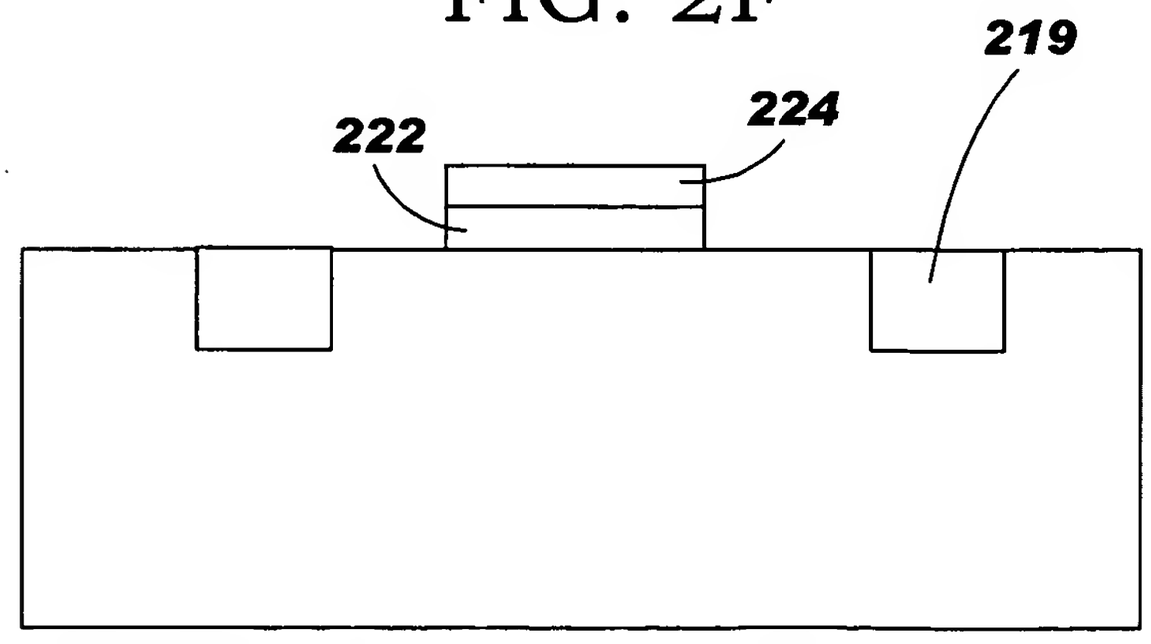


FIG. 2G

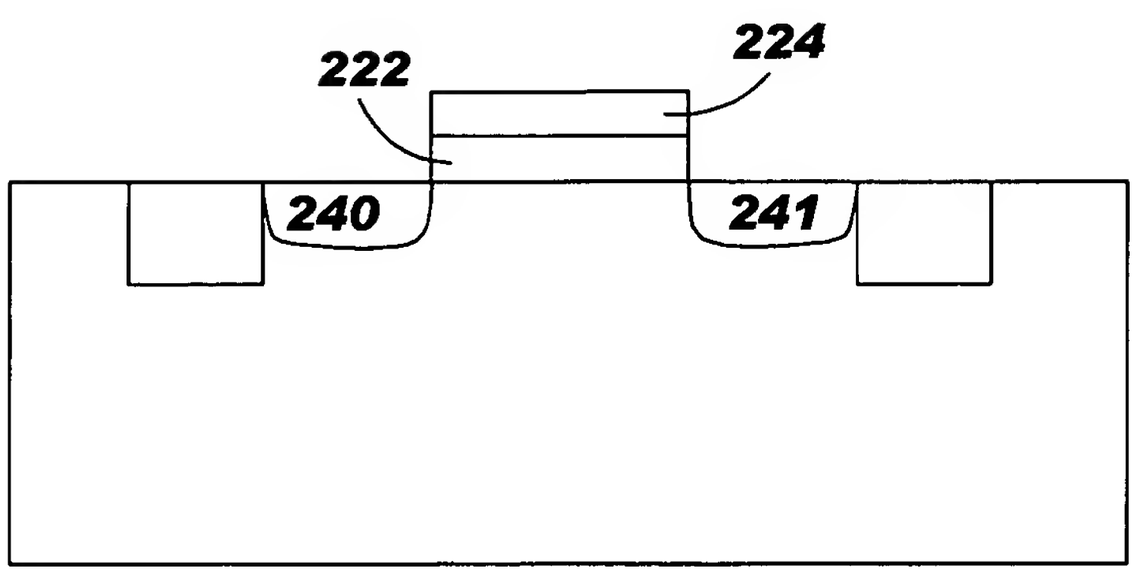


FIG. 2H

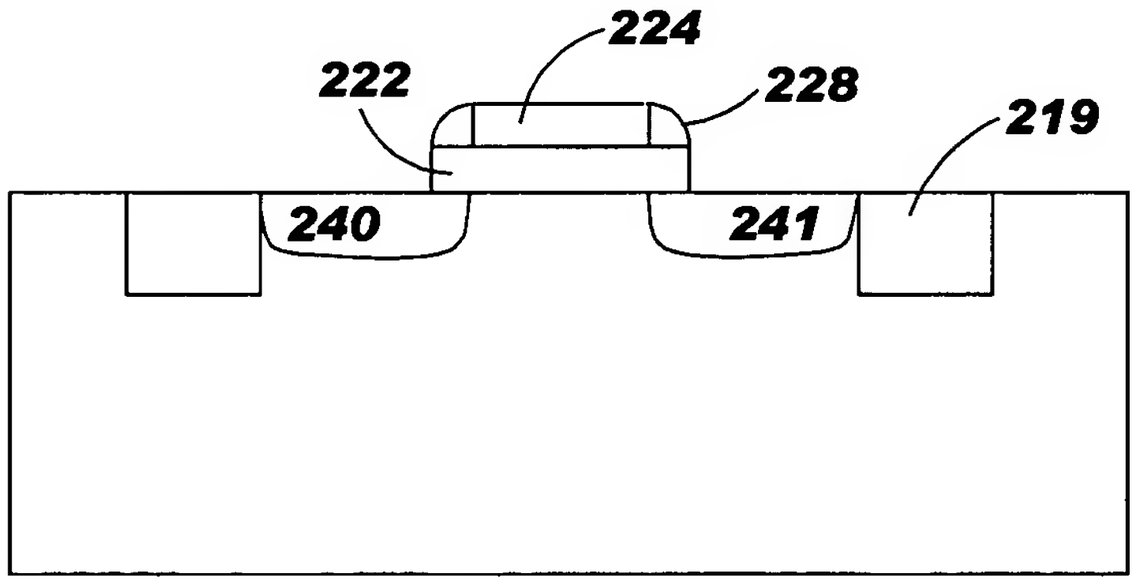


FIG. 2I

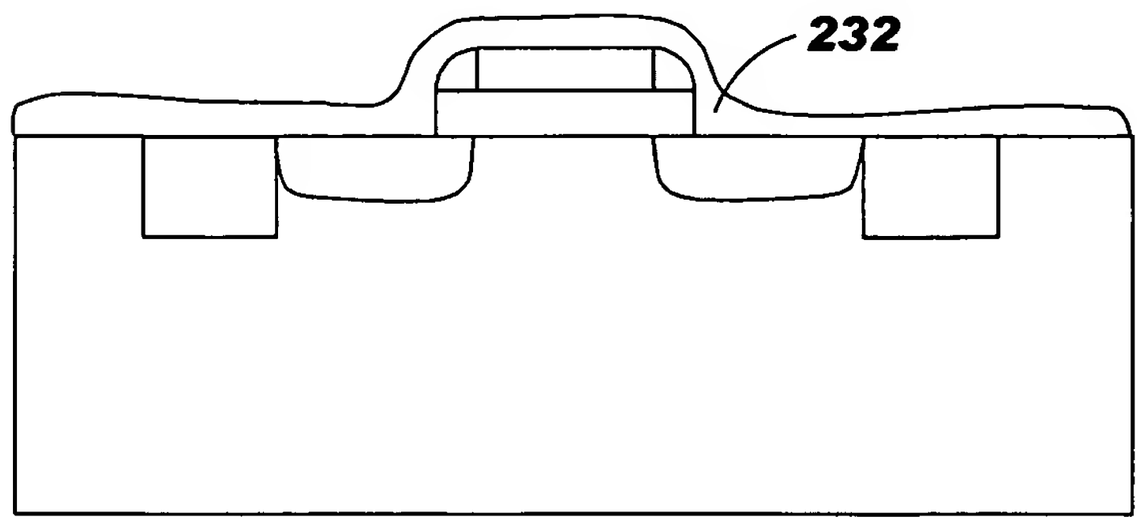


FIG. 2J

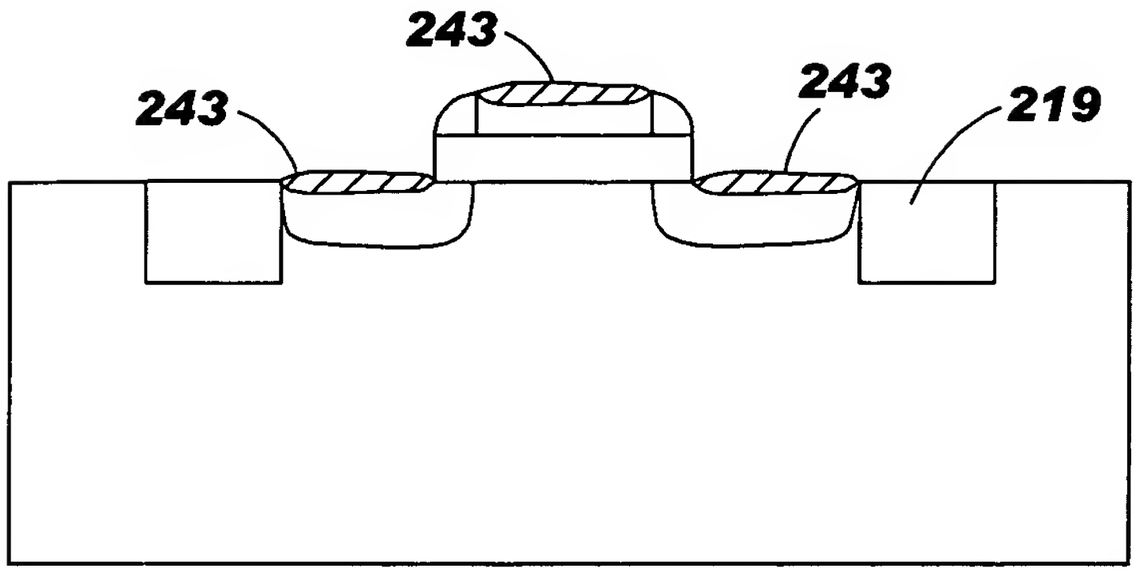


FIG. 2K

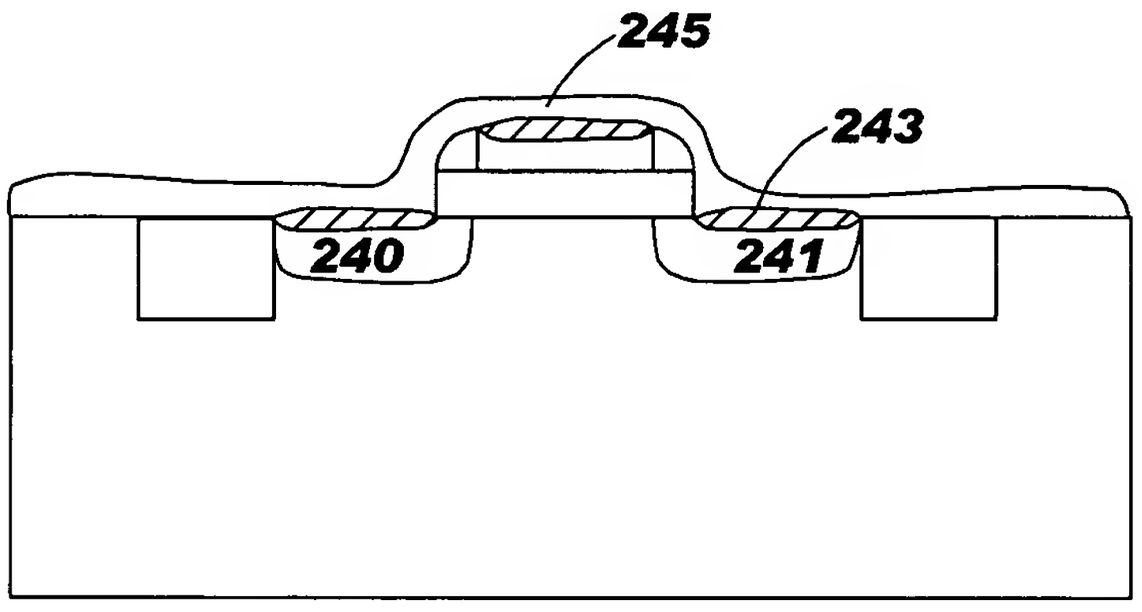


FIG. 2L

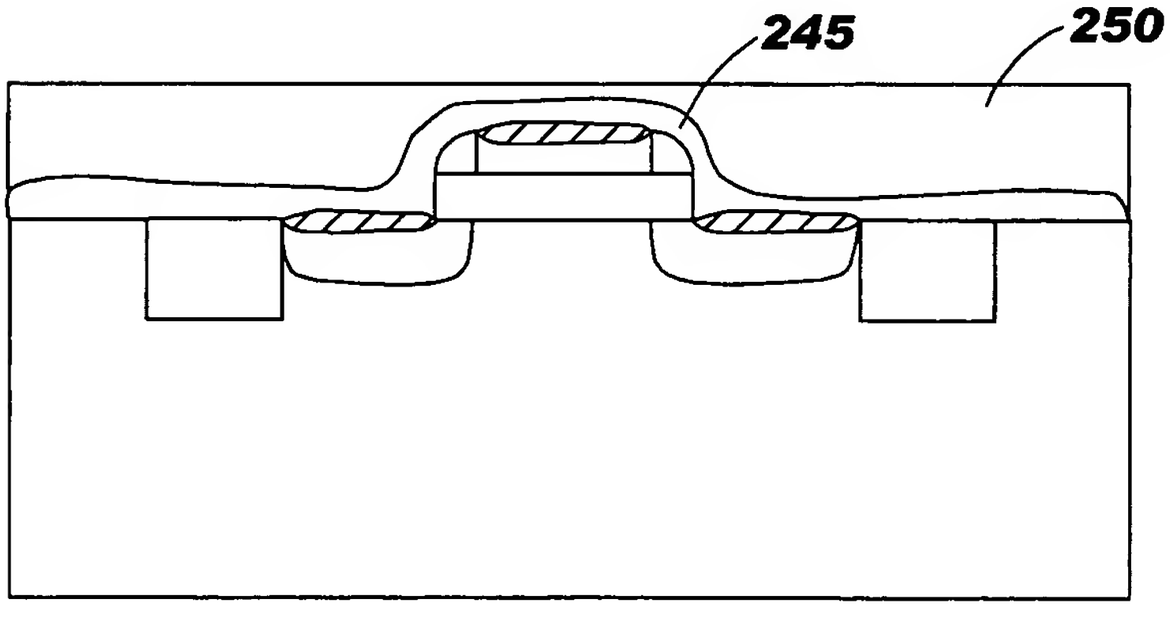


FIG. 3

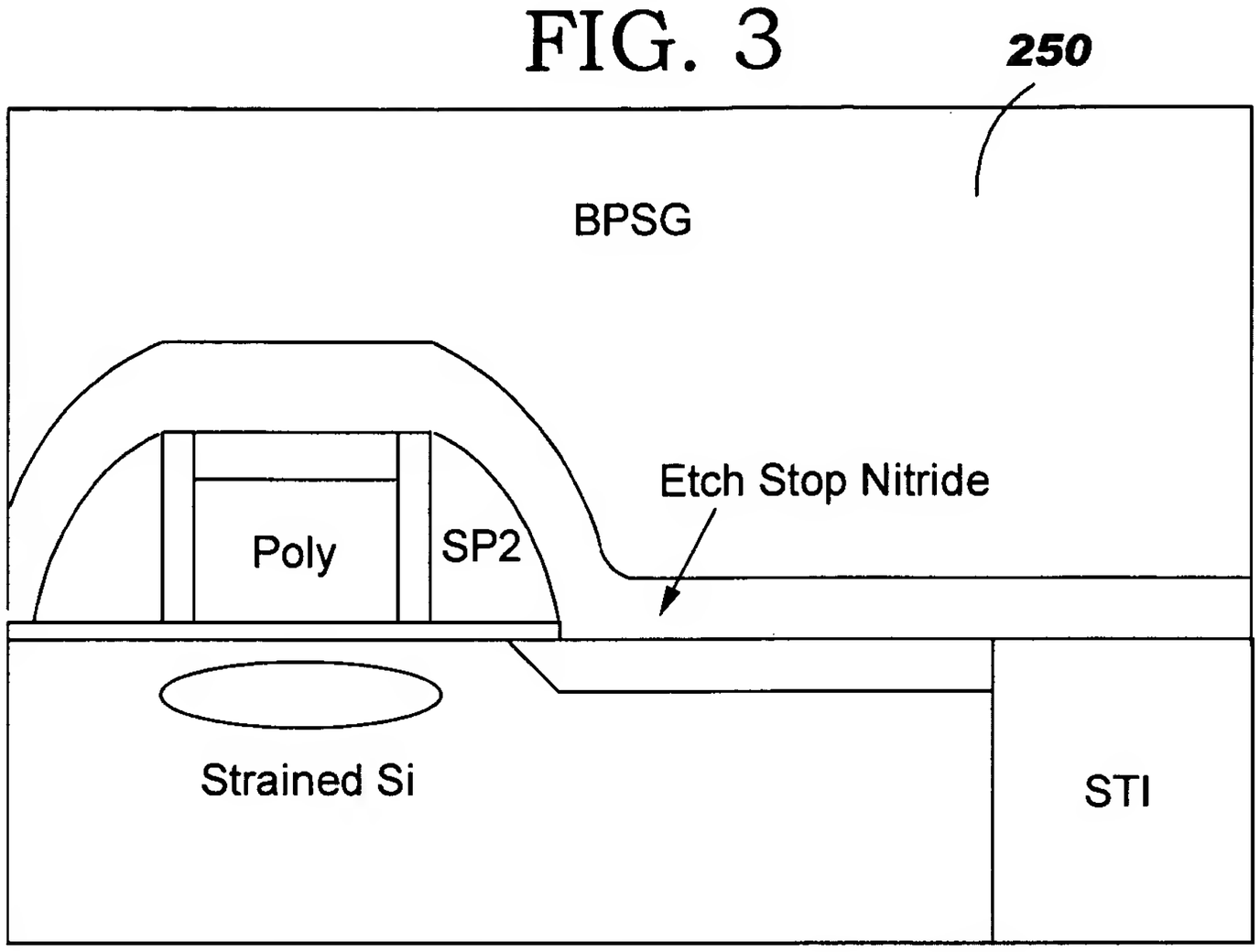

250
BPSG
Etch Stop Nitride
Poly
SP2
Strained Si
STI

FIG. 4

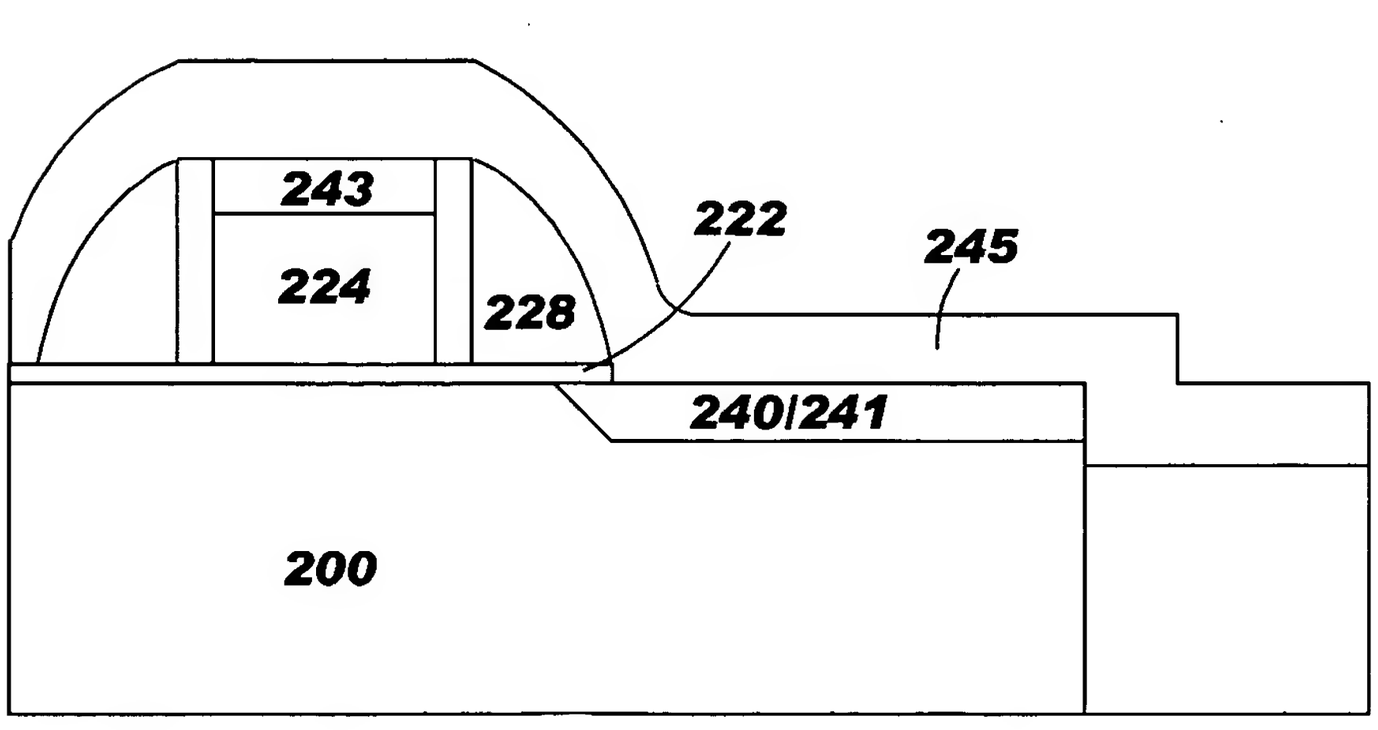

243
224
228
222
245
240/241
200

FIG. 5

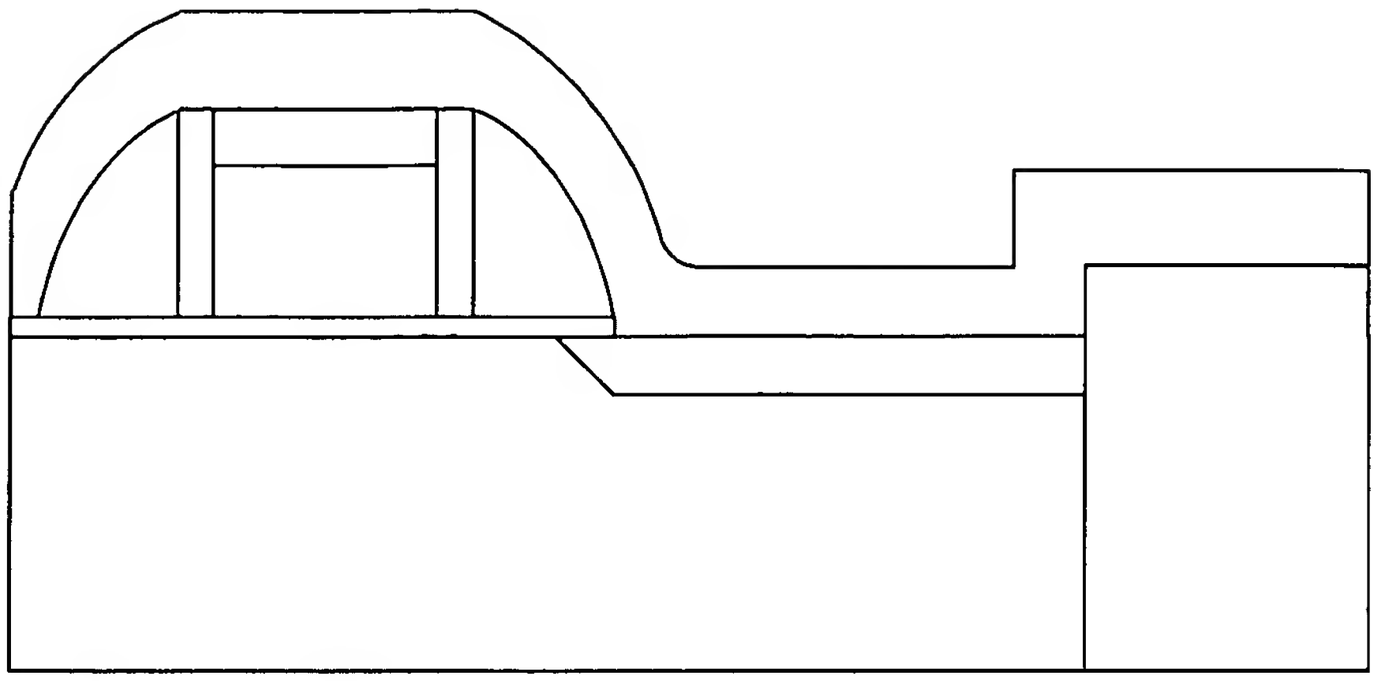
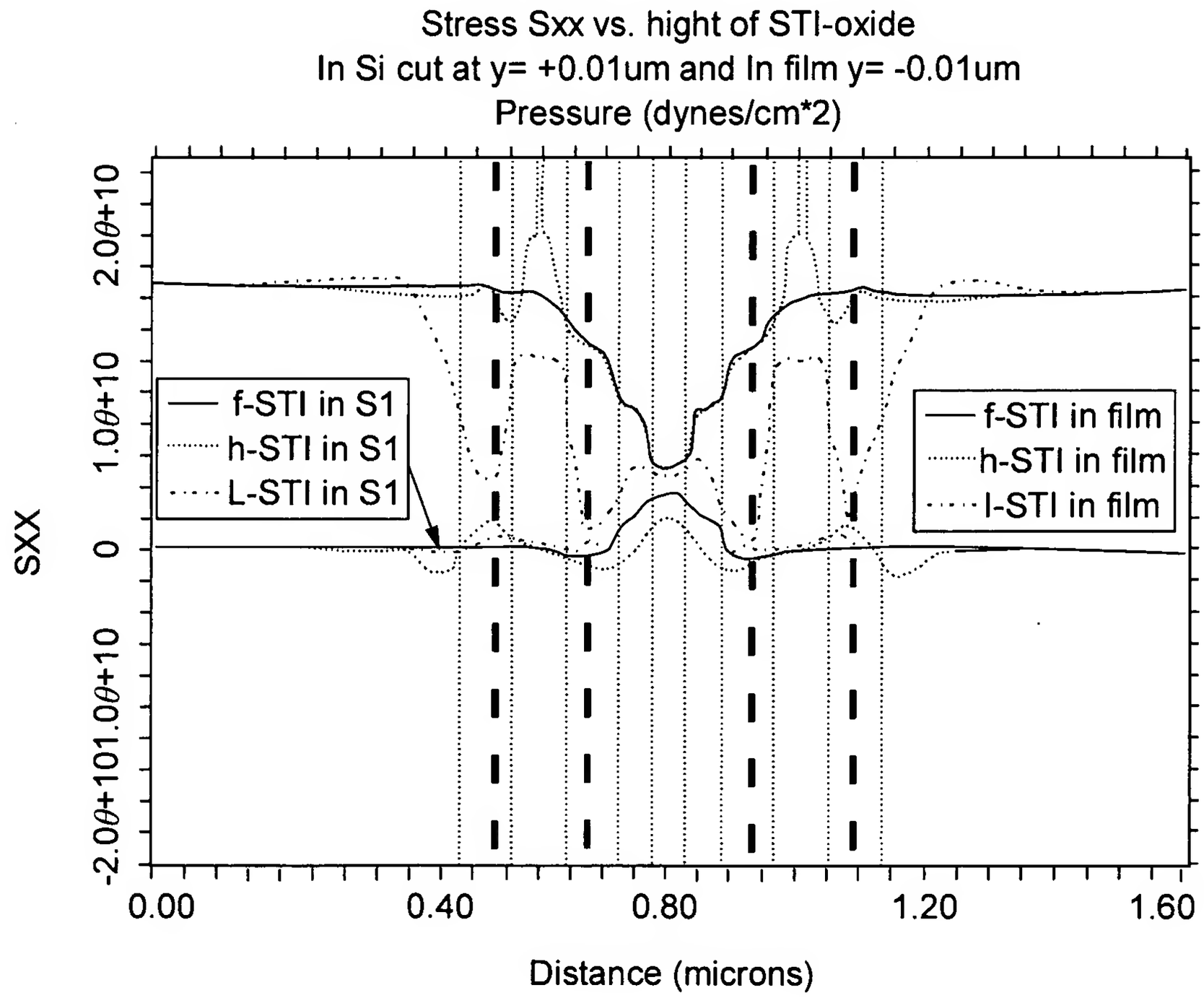


FIG. 6


Stress Sxx vs. hight of STI-oxide
In Si cut at y= +0.01um and In film y= -0.01um
Pressure (dynes/cm*2)
SXX
2.0θ+10
1.0θ+10
0
-1.0θ+10
-2.0θ+10
f-STI in S1
h-STI in S1
L-STI in S1
f-STI in film
h-STI in film
l-STI in film
0.00
0.40
0.80
1.20
1.60
Distance (microns)

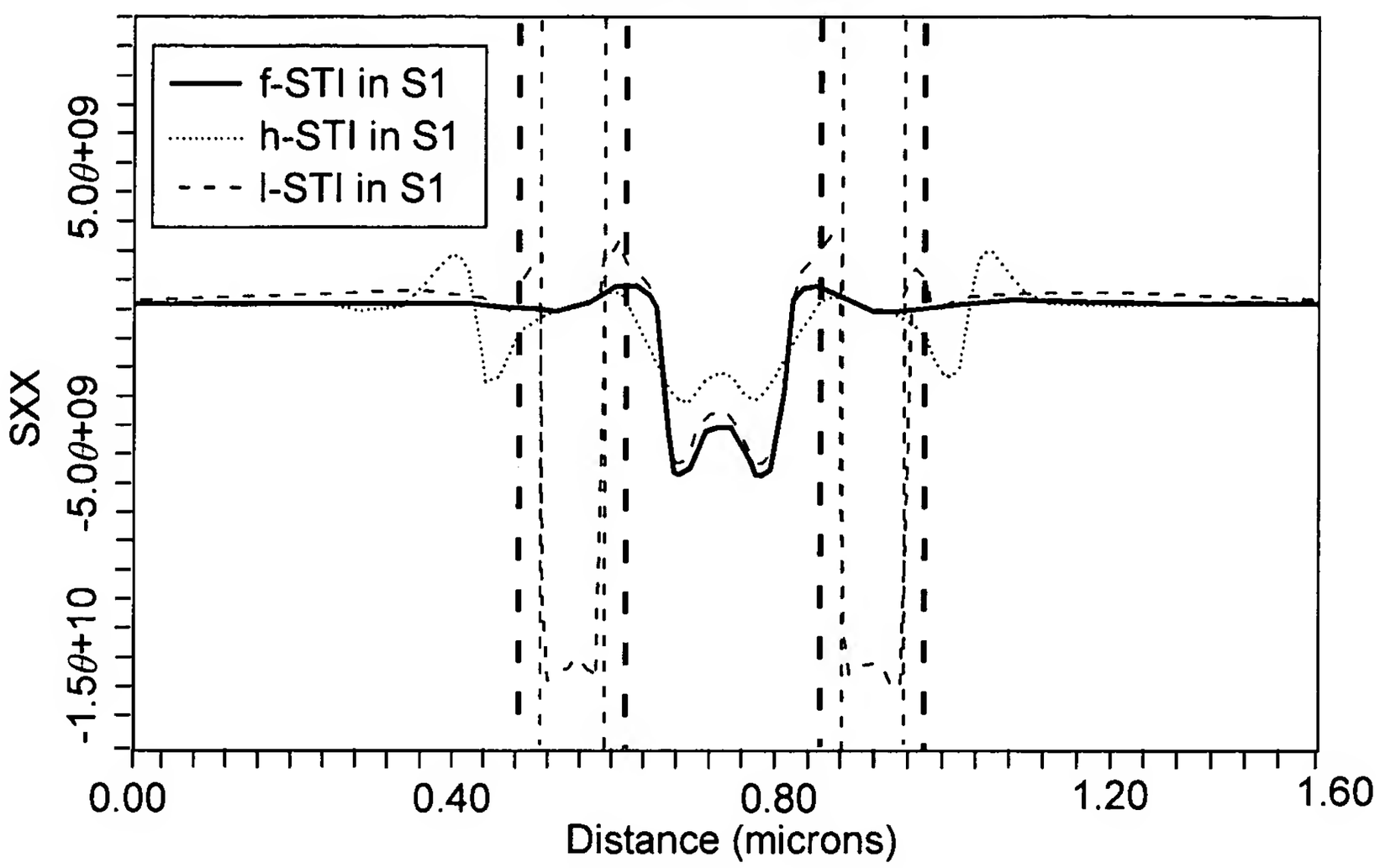

Stress Sxx vs. hight of STI-oxide
in Si cut at y=+0.01um
Pressure (dynes/cm*2)
f-STI in S1
h-STI in S1
l-STI in S1
SXX
5.0θ+09
-5.0θ+09
-1.5θ+10
0.00
0.40
0.80
1.20
1.60
Distance (microns)

FIG. 7

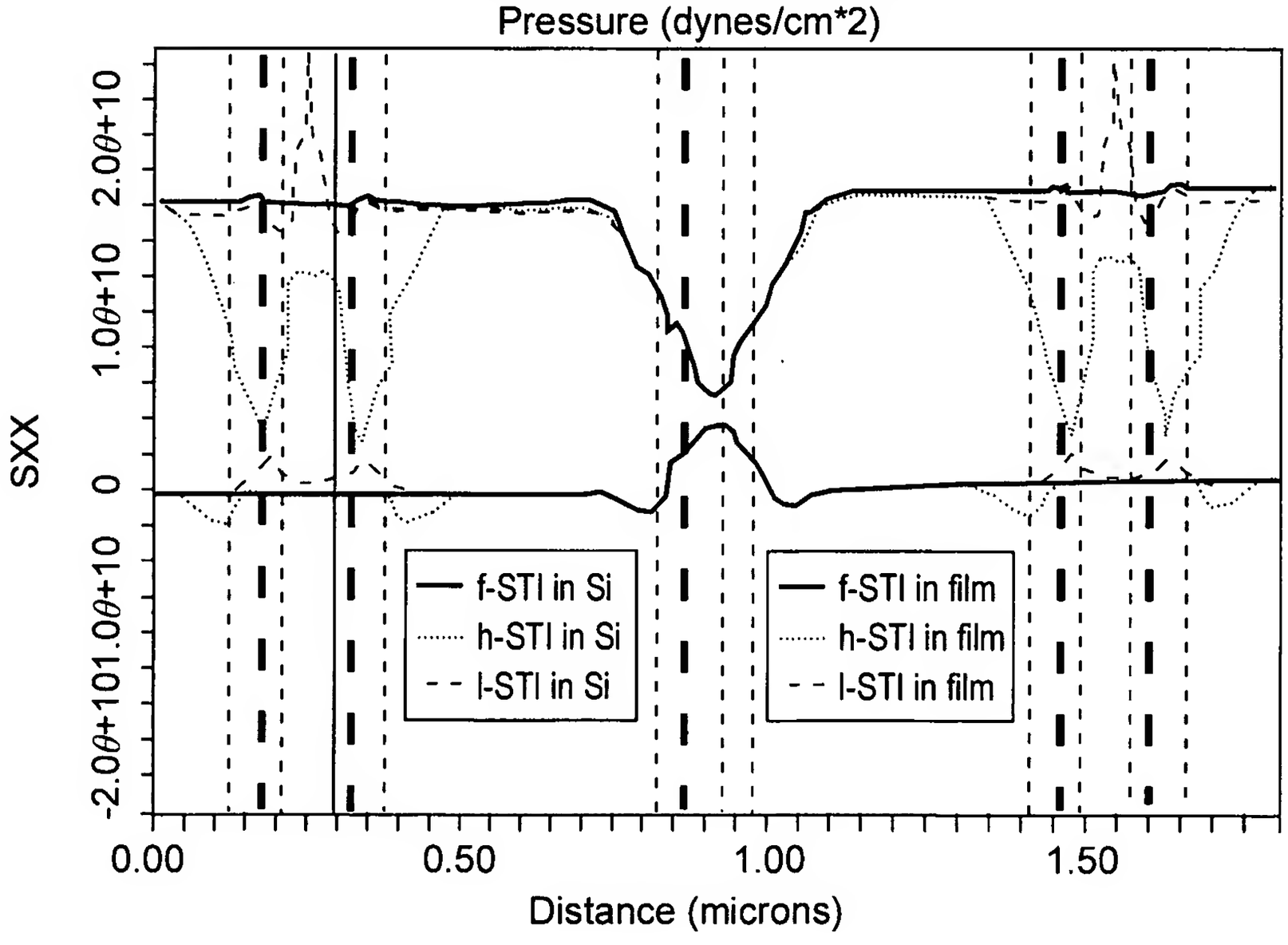

Stress Sxx vs. hight of STI-oxide w/large PC-STI distance
in Si cut at y=0.01um and in film y=0.01um
Pressure (dynes/cm*2)
SXX
2.0θ+10
1.0θ+10
0
-2.0θ+10
1.0θ+10
f-STI in Si
h-STI in Si
l-STI in Si
f-STI in film
h-STI in film
l-STI in film
0.00
0.50
1.00
1.50
Distance (microns)

FIG. 8